

## HYBRID CIRCUIT FOR BIDIRECTIONAL FREQUENCY DIVISION MULTIPLEXED COMMUNICATION

### Abstract

The present invention relates to a hybrid circuit for bidirectional communication over a communication line, the hybrid circuit directing a transmit signal inputted at an input line to the communication line and directing a receive signal received on the communication line to an output line different to the input line, the input line and the output line being coupled with a primary side of a transformer, the secondary side of the transformer being coupled with the communication line. Optionally, the hybrid circuit can be used within a communication system for a digital subscriber line. The primary side of the transformer comprises two coils with a first terminal and a second terminal respectively, the coils being connected in series via a middle impedance arranged between the first terminals of the coils. The input line is coupled with the second terminals of the coils, wherein a first output terminal of the output line is connected via a first impedance to a first terminal of the input line and via a second impedance to the first terminal of the second coil and a second terminal of the output line is connected via a third impedance to the second terminal of the input line and via a fourth impedance to the first terminal of the first coil. With this configuration the number of required components can be reduced which is a cost and size advantage. Furthermore the present invention has the advantage to reduce the attenuation of the receive signal in the hybrid circuit.